

(No Model.)

2 Sheets—Sheet 1.

T. A. EDISON.
TELEPHONE TRANSMITTER.

No. 378,044.

Patented Feb. 14, 1888.

Fig. 1.

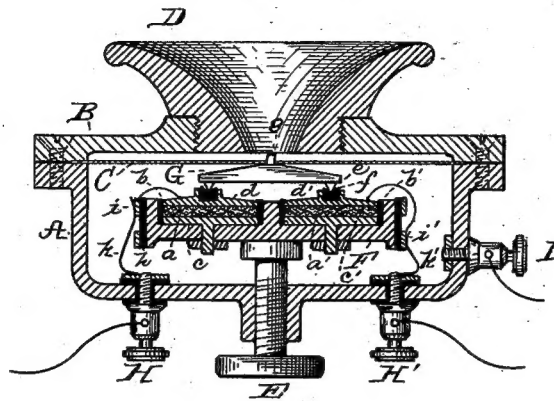
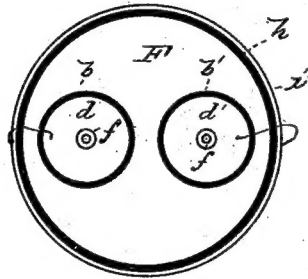


Fig. 2.



ATTEST:

E. C. Rowland
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INVENTOR:

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att

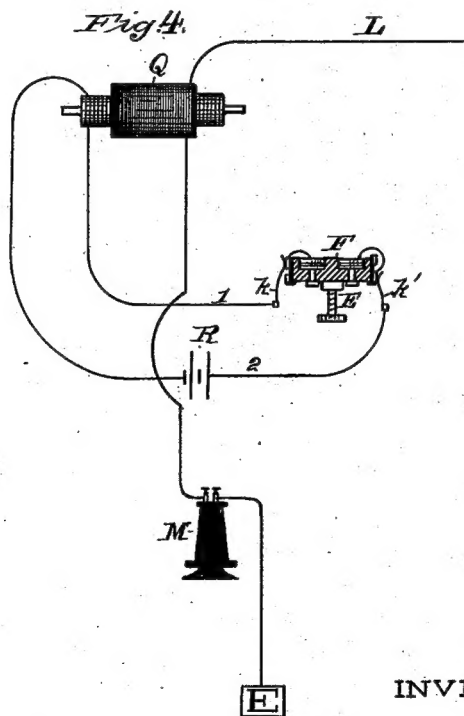
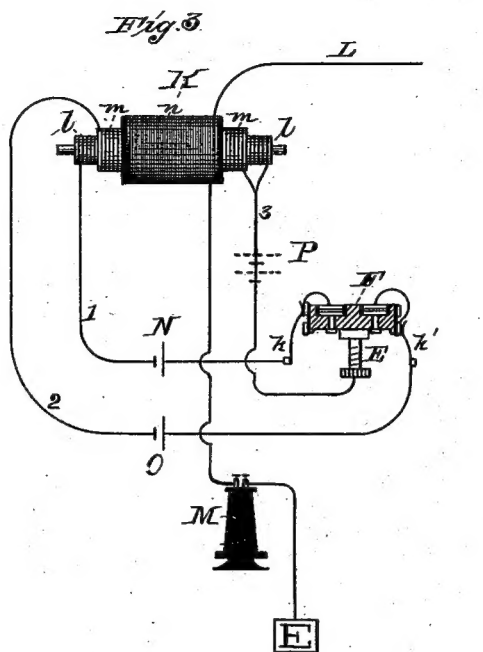
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ATTES:

*E. Rowland.
Attest.*

INVENTOR:

*Thomas A. Edison.
By *Dyer* *Shaw*.
att.*

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY.

TELEPHONE-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 378,044, dated February 14, 1888.

Application filed October 14, 1885. Serial No. 179,868. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Telephone-Transmitters, (Case No. 646,) of which the following is a specification.

My invention relates to electric telephone-transmitters, preferably of the class employing carbon buttons; and my object is to produce a simple and efficient multiple instrument of this character and an arrangement for working multiple instruments in circuit which will be more effective than those heretofore proposed.

In the accompanying drawings, forming a part hereof, Figure 1 is a vertical section of the transmitter; Fig. 2, a top view of the electrode-carrier; Fig. 3, a view, principally in diagram, showing the preferred arrangement of the instrument in circuit; and Fig. 4, a similar view of an arrangement that may be employed.

The case of the instrument is preferably of metal, made in two parts, A B, between which is clamped the diaphragm C, of metal or mica. The part B of the case comes to mouth-piece D. Centrally in part A of the case is a metal adjusting-screw, E, which carries a metal plate, F. This plate is the carbon-button carrier. It is shown as carrying two carbon buttons; but a greater number may be used. This plate F has on its face two circular receptacles with metal plates *a a'* in their bottom. These receptacles have rings *b b'* of insulating material—such as hard rubber—which rings insulate the carbon buttons and superimposed plates from the carrier. Upon plates *a a'* are carbon buttons *c c'*, and above these are metal plates *d d'*, upon which bear the arms of a yoke, G. Points *e* on the yoke-arms enter sockets *f*, of insulating material, carried by plates *d d'*. The yoke G has on its back a central stud, *g*, which enters a central opening in the diaphragm and is adapted to turn freely therein.

The periphery of plate F is faced with insulation, *h*—such as hard rubber—and upon this insulating-face are secured metal rings *i i'*, one for each carbon button. These rings are connected with the plates *d d'*, as shown, ring *i* being connected electrically by a fine wire with plate *d* and ring *i'* with plate *d'*. Insulated

binding-posts H H' have springs *k k'*, which bear on rings *i i'*.

If three or more carbon buttons are employed, the plate F will have a corresponding number of receptacles, and the arms of the yoke, the rings on the periphery of the button-carrier, and the insulated binding-posts and springs will be increased correspondingly in number. The instrument has a binding-post, L, which is not insulated from the metal case.

To adjust the instrument, the screw E is turned, the springs *k k'* having a broad enough bearing on rings *i i'* to permit this to be done and the yoke G turning on the diaphragm.

In use I prefer to arrange the carbon buttons in circuit with different primary induction-circuits, the induction-coil having two primary circuits and one secondary circuit, as shown in Fig. 3.

K is the induction-coil, having two primaries, *l m*, and a secondary, *n*. The primaries are preferably the same in resistance, size of wire, and number of turns, the wires for the two primaries being wound together, although for clearness in illustration they are shown as separated in Fig. 3. The wires 1 2 to the insulated binding-posts are connected with one end of the two primary coils *l m*, while at the other end the primary coils are connected to a common wire, 3, connected with the base-post. The line L passes through secondary to the receiver M and the ground.

I prefer to employ two separate batteries, N O, one in the circuit of each wire 1 and 2; but these batteries may be combined in one, P, and located in circuit of wire 3, as shown in dotted lines. The transmitter-circuit, assuming the two separate batteries N O are used, will be from N O by wires 1 2 through primaries *l m*, by wire 3 to base, and by screw E to plate F, through plates *a a'*, carbon buttons *c c'*, plates *d d'* to rings *i i'*, springs *k k'*, insulated posts, and wires 1 2 back to batteries.

By the arrangement shown in Fig. 4 a simple induction-coil, Q, is employed. The line passes through the secondary and receiver to ground. The simple primary circuit is connected with the two insulated binding-posts by wires 1 2, and a single transmitting-battery, R, is employed. This throws the carbon buttons into series, the circuit being down through

one carbon button, across plate F, and up through the other carbon button. For these connections the base-post L is not connected with the circuit.

5 What I claim is—

1. In a multiple electric telephone-transmitter, the combination of two or more sets of electrodes supported by a common carrier mounted on a central adjusting-screw and turning therewith, substantially as set forth.

2. In a multiple electric telephone-transmitter, the combination of two or more sets of electrodes supported by a common carrier mounted on and turning with a central adjusting-screw, with a turning-yoke bearing on such electrodes and connected centrally with the diaphragm, substantially as set forth.

3. In a multiple electric telephone-transmitter, the combination of two or more sets of electrodes mounted upon a common metallic support and having separate insulated bearing or contact plates connected with insulated circuit-connections, substantially as set forth.

4. In a multiple telephone-transmitter, the combination of the central adjusting-screw supporting a metallic electrode-carrying plate turning therewith, two or more sets of electrodes carried by said plate and connected together on one side electrically by such plate, separate insulated bearing or contact plates for such electrodes connected mechanically with the diaphragm, insulated rings on the carrier-plate with which said separate contacts are electrically connected, springs bearing on such insulated rings, and insulated binding-posts for such springs, substantially as set forth.

This specification signed and witnessed this 9th day of January, 1885.

THOMAS A. EDISON.

Witnesses:

H. W. SEELY,

T. G. GREENE, Jr.